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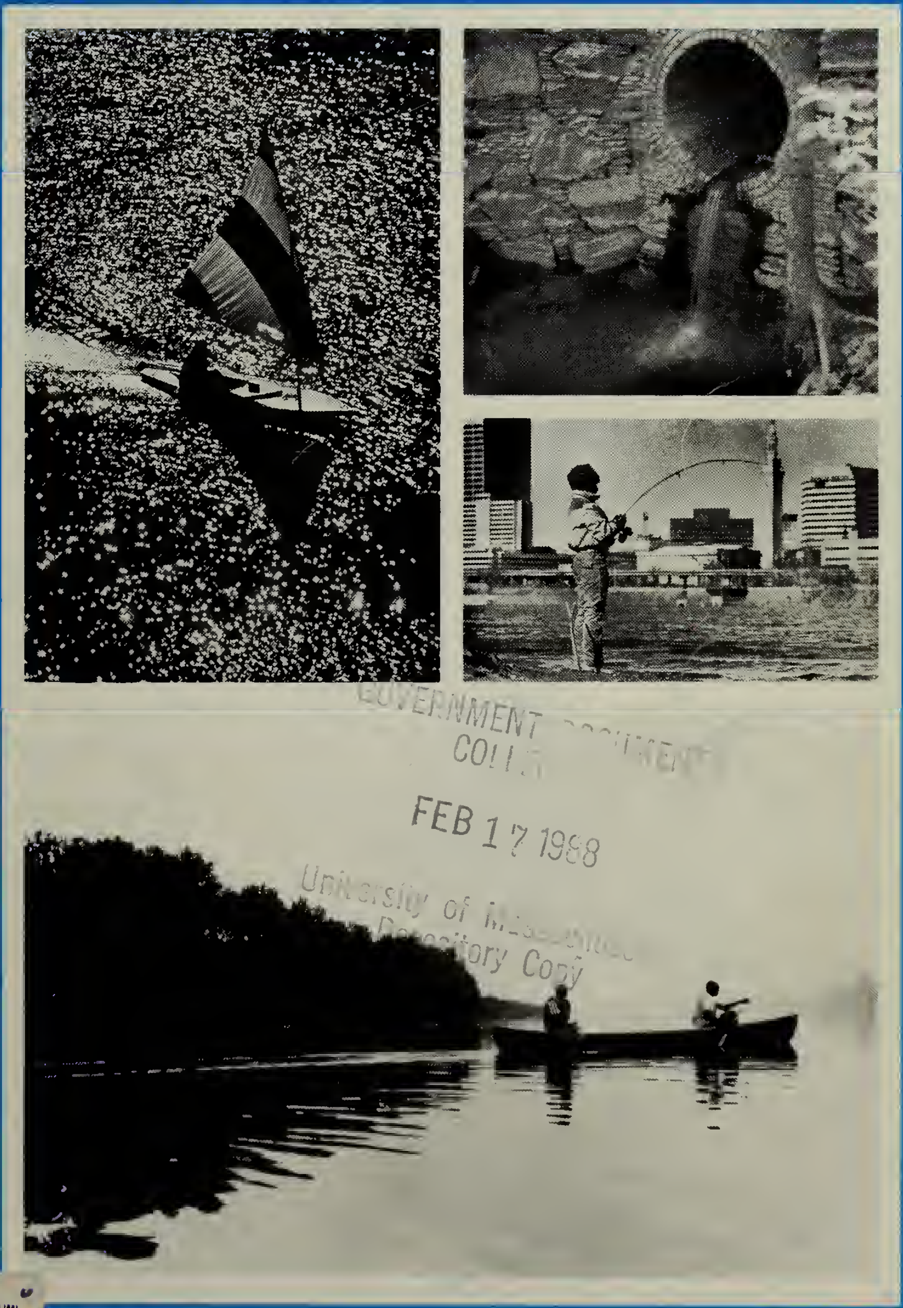
The Connecticut River:

Achieving the Fishable / Swimmable Goal



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Prepared by the
Pioneer Valley Planning Commission
December 1986

THE CONNECTICUT RIVER:
Achieving the Fishable / Swimmable Goal

Executive Summary

December, 1986

Prepared by

The Pioneer Valley Planning Commission
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Forward

This Executive Summary provides a condensed version of the report, The Connecticut River: Achieving the Fishable/Swimmable Goal. This report is part of the Connecticut River Combined Sewer Overflow Study which is being undertaken by the communities of Springfield, Chicopee, Holyoke, West Springfield, Agawam, South Hadley and Ludlow, and by the Massachusetts Division of Water Pollution Control. The overall goal of the study is to evaluate the problem of combined sewer overflows on the Connecticut River, and to define a cost-effective regional solution for cleaner water. The principle aim of this report is to explore the potential for increased use of the lower Connecticut River in Massachusetts for fishing, swimming, boating and other activities, if further water quality improvements are made.

HAMPSHIRE GAZETTE Photo by Gordon Daniels

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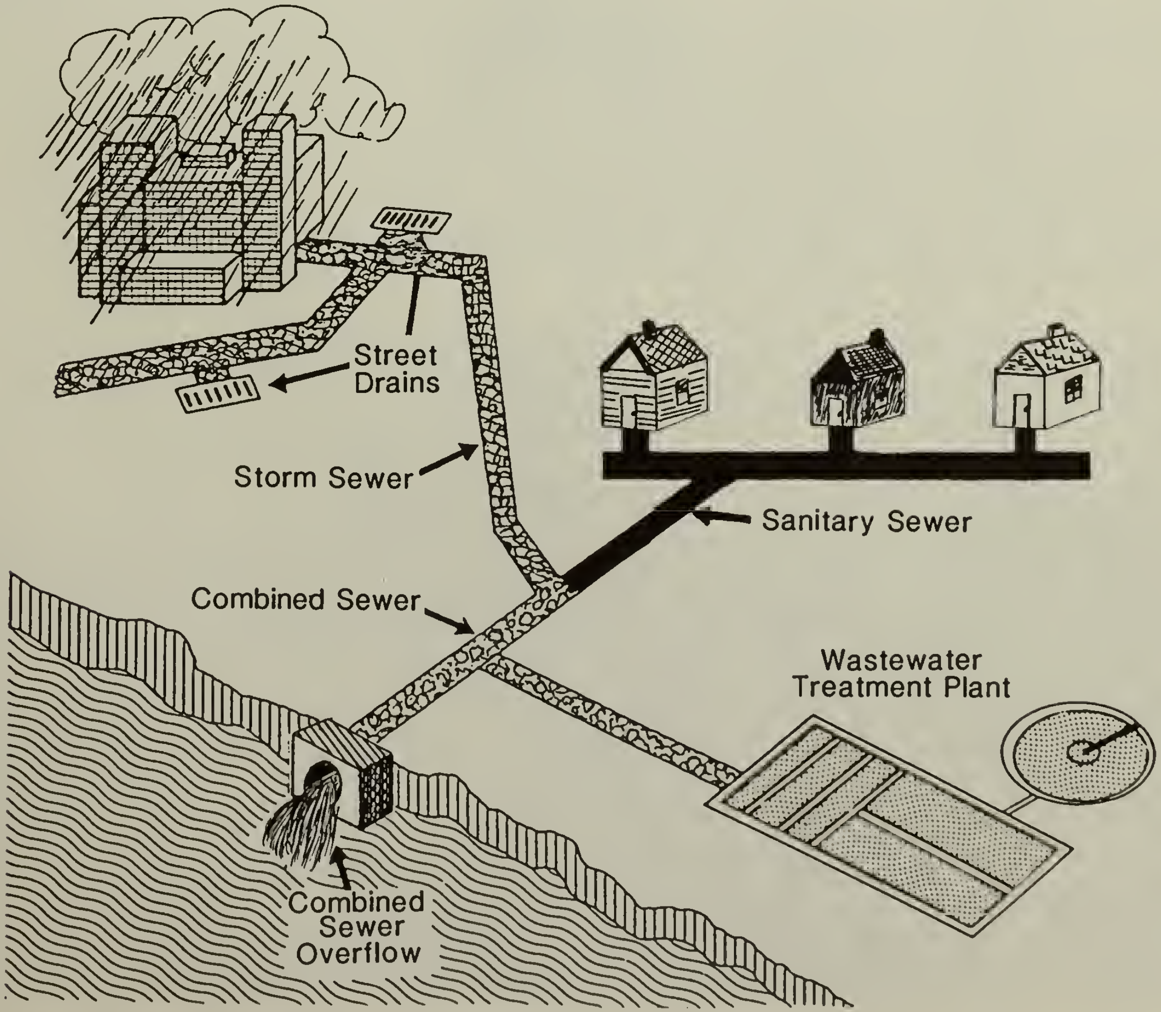
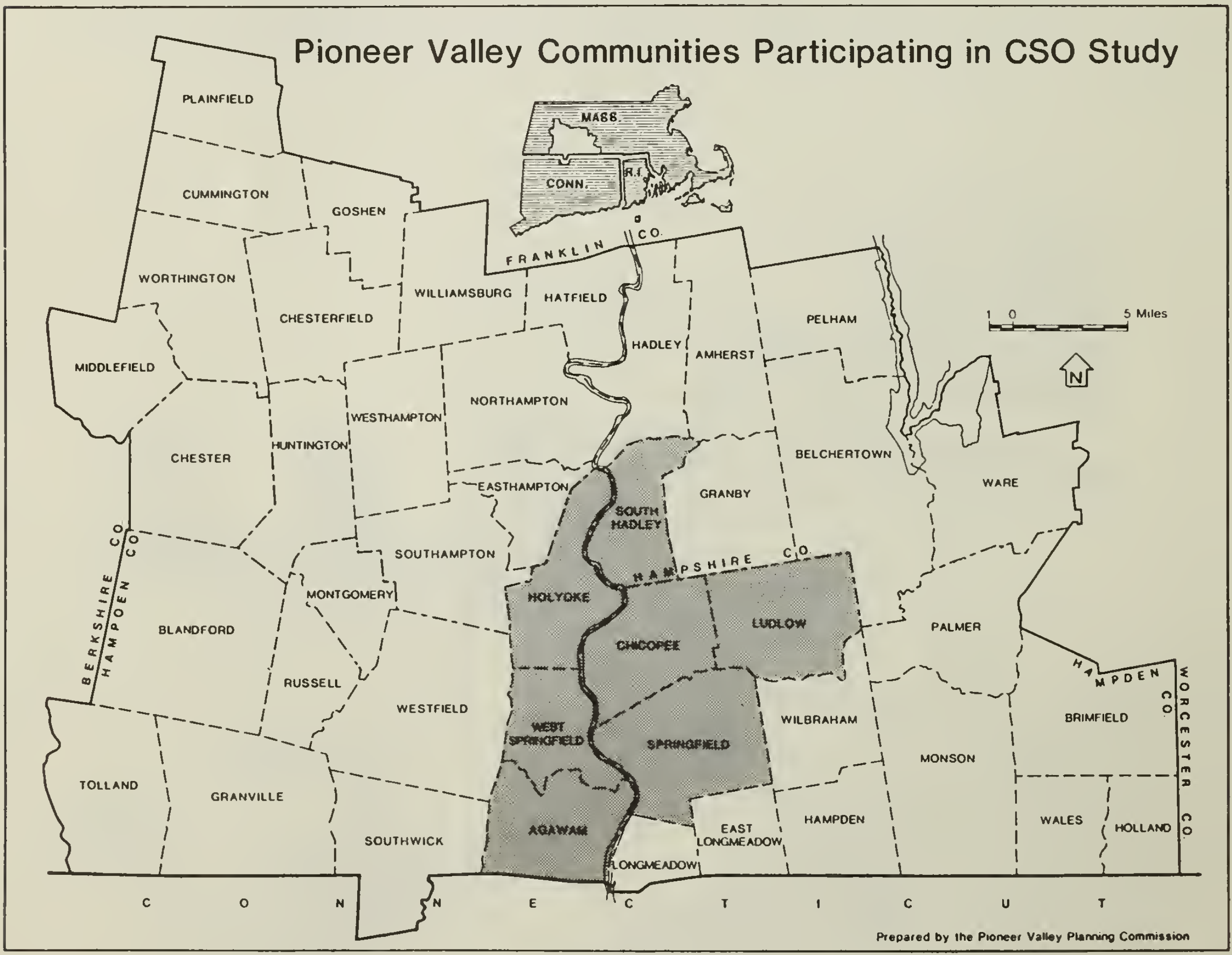
Introduction

The Connecticut River, one of New England's most important natural resources, is making a comeback. Once grossly polluted by urban and industrial wastes, the Connecticut has experienced major improvements in water quality over the past ten years as a result of public and private expenditures for pollution control. However, on the lower Connecticut River in Massachusetts, combined sewer overflows remain as the last obstacle to attaining fishable and swimmable standards.



Combined sewer overflows exist in many older urban areas and are designed to carry both sanitary sewage and stormwater in a single piping system. During dry weather when sewers are handling only sanitary wastes, all of the sewage is carried directly to the wastewater treatment plant. However, during wet weather, sewers become burdened with both sanitary wastes and stormwater runoff. To prevent flooding and overloading of the sewers and the treatment plant, excessive flows are allowed to discharge directly into the river, untreated.

Concern about the effects of combined sewer overflows (CSOs) on water quality in the lower Connecticut River in Massachusetts has prompted the Massachusetts Division of Water Pollution Control (DWPC) to provide funding to undertake a Connecticut River CSO Study. The study is being funded through the DWPC's Construction Grants program and the federal Environmental Protection Agency's Section 205j program. The study will focus on seven communities which have combined sewer overflows discharging into the Connecticut River or its tributaries. These communities include: Agawam, Chicopee, Holyoke, Ludlow, South Hadley, Springfield and West Springfield.


Pioneer Valley Communities Participating in CSO Study

Prepared by the Pioneer Valley Planning Commission

A Very Special Valley

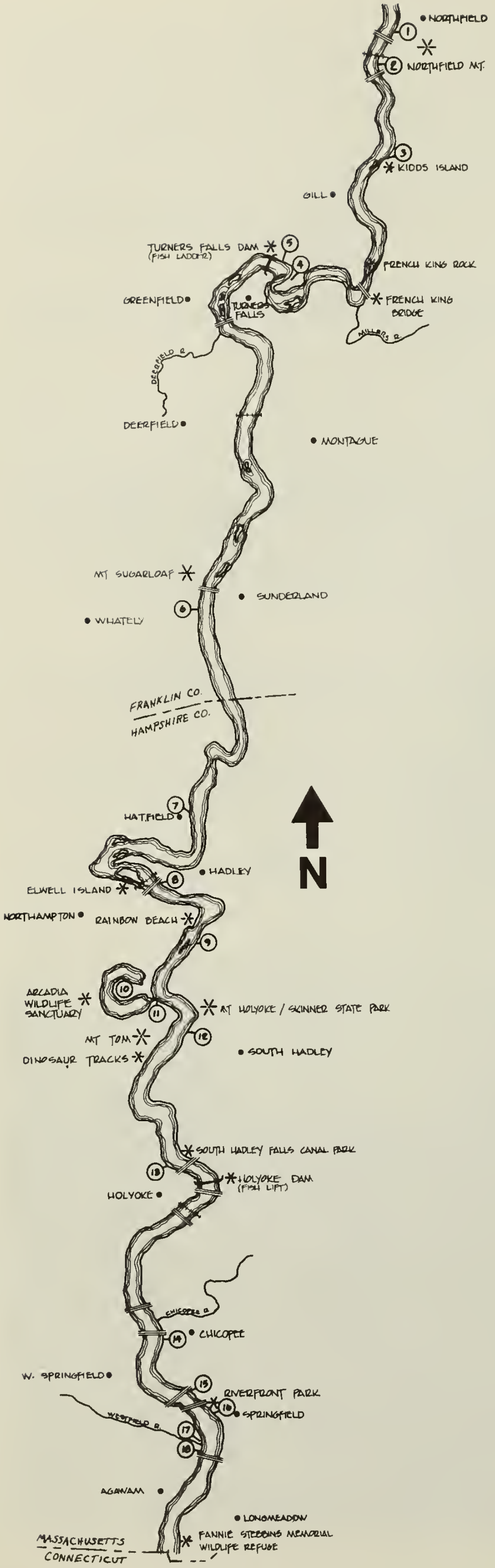
I The Connecticut River Environment

Natural Landscape

The Connecticut River is New England's longest river, flowing 410 miles from a series of lakes near the Canadian border in New Hampshire before joining the sea at Long Island Sound. In Massachusetts, the Connecticut River flows 68 miles and drains a land area of about 1.7 million acres. Major tributaries to the river in Massachusetts include the Millers, Deerfield, Ware, Quaboag, Chicopee and Westfield Rivers.

In rural areas, the Connecticut River landscape is dominated by farmlands in corn, vegetables and hay and rolling hills covered by oak-maple-beech forest.

The Connecticut River area supports a rich variety of wildlife. Migrating waterfowl utilize the river as an important resting and feeding area along the Atlantic flyway. Birds of prey, including the rare American Bald Eagle and Osprey are sited more frequently with improved water quality. Fish are abundant in the Connecticut River, with a wide variety of species ranging from the numerous American Shad to the endangered Shortnose Sturgeon and the rare Atlantic Salmon.



Human Landscape

The Connecticut River flows through three Massachusetts counties (Hampden, Hampshire and Franklin) and 19 towns. The communities abutting the river in Massachusetts support a population of 441,827, including 40,205 in Franklin County, 68,435 in Hampshire County, and 333,187 in Hampden County.

River Reaches

Upper Connecticut River in Massachusetts (Franklin County to Holyoke Dam- 20 Miles

The Connecticut River flows southward from Franklin County through a wide valley of fertile farmlands in the rural/suburban communities of Hadley and Hatfield. At Northampton, the river makes a wide turn, passing the Oxbow, a horseshoe-shaped former river channel now abandoned. The river then cuts through the Holyoke Range between Mount Nonotuck and Mount Holyoke, flows along a forested shoreline with occasional homes, reaching the Holyoke Dam in six miles. Recreational use of this section of river is heavy due to clean water, a deep river channel and good public access.

Lower Connecticut River in Massachusetts (Holyoke Dam to Connecticut Line - 13 Miles)

Below the Holyoke Dam, the Connecticut River moves through a heavily urbanized area which includes the cities of Holyoke, Chicopee, Springfield and West Springfield. Much of this section of the river is lined with flood control dikes. Homes, industrial mills and downtown office buildings are visible from the shoreline. Water levels can become very low immediately below the dam in the summertime, but are generally sufficient to permit power boating in the Springfield-Chicopee area. With its proximity to urban areas, this section has great potential for recreational use. However, water quality problems have limited recreational use to power boating and shoreline fishing.

II Water Pollution Control Legislation

Federal and State water pollution control laws have been a key factor in efforts to clean up the Connecticut River to date. Legislators have mandated improvements in water quality and have provided grants and loans for the construction of water pollution control facilities to help municipalities meet desired water quality goals. The following sections provide an overview of legislative efforts.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
POLLUTION CONTROL PROJECT
Environmental Protection for Town of Hadley, Mass.
New $2. Million Dollar Waste Water Treatment Plant
$1,106,982 Federal Dollars
$710,807 State Dollars
$213,087 Local Share

FEDERAL POLLUTION CONTROL LAWS

Almost 40 years have passed since initial federal legislation aimed at improving our nation's waterways was enacted. Beginning with the 1948 Water Pollution Control Act and proceeding through the early 1970's, the federal government adopted a succession of legislation designed to help fund water pollution control facilities and set water quality standards (see Table 1).

TABLE 1

Major Federal Water Pollution Control Legislation

		Provisions
1948	Water Pollution Control (P.L. 80-845)	Temporary Authority. Loans for Treatment Plant Construction
1956	Water Pollution Control Act Amendments (P.L. 84-660)	Permanent Authority. Court Action process for Interstate Waters. Grants for Treatment Plant Construction.
1961	Federal Water Pollution Control Act (P.L. 87-88)	Federal Jurisdiction Extended to Navigable Waters. Research on Municipal Treatment
1965	Water Quality Act (P.I. 89-234)	Federal/State Standard Setting. Streamlined Enforcement Process
1966	Clean Water Restoration Act (P.L. 89-753)	Grants for Treatment Plants. Responsibility for Oil Pollution Act Transferred to Secretary of the Interior.
1970	Water Quality Improvement Act (P.L. 91-224)	Absolute Liability for Oil Spills
1972	Water Pollution Control Act Amendments (P.L. 92-500)	Federal Effluent Standards. Discharger Permit Program. National Goal of Eliminating Pollution. Grants for Treatment Plant Construction
1977	Clean Water Act (P.L. 95-217)	Secondary Treatment Extension, Authorization for Treatment Plant Construction
1981	Water Pollution Control Act Amendments (P.L. 97-117)	Modification of treatment requirements Authorization for continued funding.

Note: Despite differing titles, all legislation after 1948 constituted amendments to the Water Pollution Control Act.

The 1972 Clean Water Act established a national goal of eliminating the discharge of pollutants into navigable waters by 1985. Furthermore, the Act states that "wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by 1983."

To achieve these goals, the Act established federal effluent standards for industries and municipalities. To enforce the effluent standards, the National Pollutant Discharge Elimination System (NPDES) was established under which all industrial and municipal dischargers are required to apply for, and comply with permits specifying the amount and constitutents of their effluent, and with schedules for achieving compliance.

Subsequent amendments to the Clean Water Act have extended the compliance deadlines for municipalities and industries under certain circumstances.

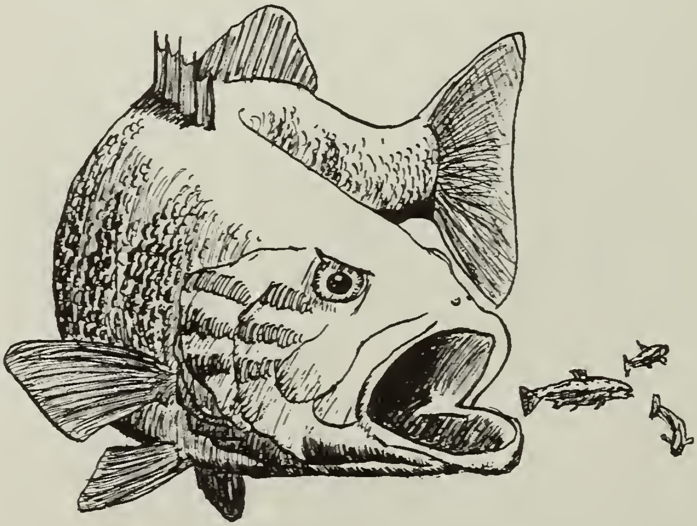
MASSACHUSETTS WATER QUALITY STANDARDS

Massachusetts established Water Quality Standards in 1967 in order to comply with federal requirements and the Commonwealth's own Clean Water Act (M.G.L. Chapter 21). Water quality standards identify the highest or best uses to be made of a particular stretch of surface water. Each of the state's waters are assigned to one of the following classes:

Class A:	Designated for use as a source of public water supply
Class B:	Designated for the protection of fish, aquatic life and wildlife and for primary (swimming) and secondary contact recreation (boating).
Class C:	Designated for protection of fish, aquatic life and wildlife and for secondary contact recreation (boating).

It must be emphasized that these classifications are water quality goals and do not reflect the actual water quality of a water body. The Connecticut River, for example, has been designated Class B along its entire length in Massachusetts, but is not currently meeting these standards in its lower sections from Holyoke to Agawam.

The Massachusetts Water Quality Standards also designate specific criteria which must be attained in order to meet the Class A, B or C standards. The key criteria for meeting the Class B standard established for the Connecticut River are: dissolved oxygen; fecal coliform bacteria; pH; and temperature.



III

Water Quality

The Connecticut River, once called the "nation's best landscaped sewer", is coming back. For over 150 years, the Connecticut, with its large volume of water, has been used for the disposal of sewage and industrial wastes. As the population has increased in the communities along its banks, ever increasing amounts of waste have been discharged. Today, although water quality problems remain, the Connecticut is displaying signs of rejuvenation.

WATER QUALITY IMPROVEMENTS

There is no doubt that the Connecticut River has improved since the first comprehensive water quality survey was undertaken in 1966. Subsequent water quality surveys conducted in 1971, 1978, 1980 and 1983 have shown significant improvement in important water quality indicators, such as fecal coliform levels, suspended solids, dissolved oxygen, pH, and biochemical oxygen demand.

In 1966, water below the Holyoke dam was grossly polluted by a steady stream of municipal and industrial discharges. Although pollution control measures, such as, primary treatment of wastes were being undertaken, this entire stretch of the river was then the equivalent of an open sewer. During this period, solids, organic wastes, process dyes which discolored the water, chromium, lead and cyanides were being discharged by industries. In addition, some untreated municipal wastes from combined sewer discharges and overloaded sewage treatment plants were entering the river. This resulted in coliform bacteria counts, a measure of bacterial pollution were over 2000 times higher than the state standard. Dissolved oxygen, essential for aquatic life, was almost totally absent from the river.

By 1971, almost all domestic waste entering the river, excepting combined sewer overflows, was receiving primary treatment. However, by this time, many of these treatment plants were old and overloaded, and little improvement occurred in water quality.

Camp Dresser & McKee Inc. Photo

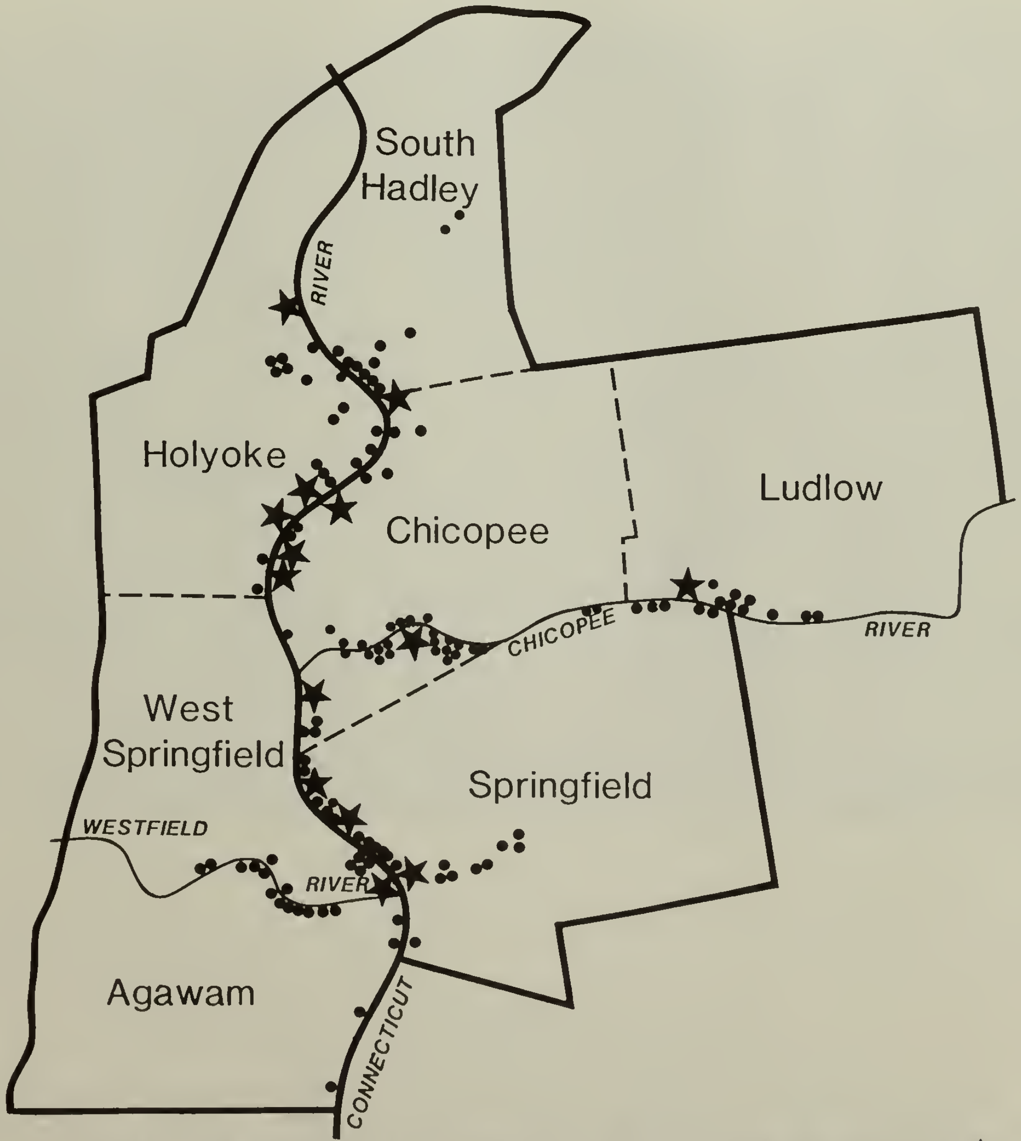
Between 1971 and 1978, secondary treatment plants were constructed in Springfield, South Hadley, Chicopee, and Holyoke to handle municipal as well as some industrial wastes. The results were greater than anticipated. By 1978, the entire stretch of the river below the Holyoke dam was meeting most Class B criteria with the notable exception of fecal coliform. The levels of dissolved oxygen had reached sufficient concentrations to sustain most fish life.

The 1980 water quality survey results demonstrated the effectiveness of continued construction of water pollution control facilities in riverside communities. Dissolved oxygen levels increased to the point where violations were rare instead of routine. The entire stretch of the river below the Holyoke Dam continued to meet all Class B standards except for coliform levels and aesthetics, oil and grease standards. With all major direct sources of pollution receiving treatment, these coliform violations were, by process of elimination, largely attributed to combined sewer overflows in Holyoke, South Hadley, Chicopee, West Springfield, Springfield, Agawam and Ludlow.

The Current Situation

While the Connecticut River has made impressive gains in the past 15 years, one more major hurdle remains. Water quality in the Massachusetts section of the river above the Holyoke Dam is now meeting federal standards; however, combined sewer overflows have prevented the section below the Holyoke Dam from achieving "fishable and swimmable" water quality. Intensive sewer system inspections conducted for the Connecticut River Combined Sewer Overflow (CSO) Study have determined that 134 combined sewer overflows discharge into the Connecticut River or its tributaries from seven communities (see below). These CSO outfalls discharge raw sewage and stormwater without treatment, primarily during and after rainstorms. However, inspections also determined that 32 of the 134 overflows discharged sewage even during dry weather.

Location of Combined Sewer Outfalls



Over 65% of the total CSO is contributed by the 14 outfalls depicted by a ★
The remaining 120 outfalls are shown as ●

At the root of CSO problems are sewer systems which were constructed many years ago to carry both stormwater and raw sewage in a single pipe, and were purposely designed to discharge excess flow during storms directly to the river. Recent inspections have shown that these problems are worsened by sewers which are clogged with sediment, broken or stuck sewer regulator gates, undersized sewers and a number of other maintenance or design problems.

Combined sewers are no longer acceptable by today's environmental standards and are not being constructed. However, it may not be feasible to simply replace all of our CSOs with new separate sewers, due to the extremely high cost. The U.S. Environmental Protection Agency (EPA) has estimated that it would require an investment of about $23 billion to correct the nation's CSO problems by separating storm and sanitary sewers or other large scale structural solutions. To separate sewers in the City of Springfield alone, consultants have estimated the cost to be approximately $325 million. The EPA and Massachusetts Division of Water Pollution Control provide financial assistance to communities for water pollution control projects, but the majority of these funds have been used to build wastewater treatment plants. As a result, sewer separation has been a low priority.

Fortunately, sewer separation is not the only alternative available to communities for controlling combined sewer overflows. Other less costly options include: storage and controlled flow to the wastewater treatment plant; detention and pre-treatment facilities; and techniques for minimizing pollutants and stormwater entering storm drains during rain storms.

The Connecticut River CSO Study will provide an in-depth investigation of combined sewer overflows and their impact on water quality in the lower Connecticut River. It will also provide the seven participating communities (Springfield, Chicopee, Holyoke, West Springfield, Agawam, South Hadley and Ludlow) with a cost-effective regional strategy for controlling CSO impacts. The strategy will be designed to meet the needs of the seven communities, federal water quality requirements and the public's desired uses of the river. When the study is completed, it will be up to the communities, and the state and federal governments to decide whether or not the recommended solutions will be implemented. Public opinion will be crucial in determining whether or not we take the last final step to achieving fishable and swimmable water quality in the lower Connecticut River.

Returns On A $300 Million Investment

IV

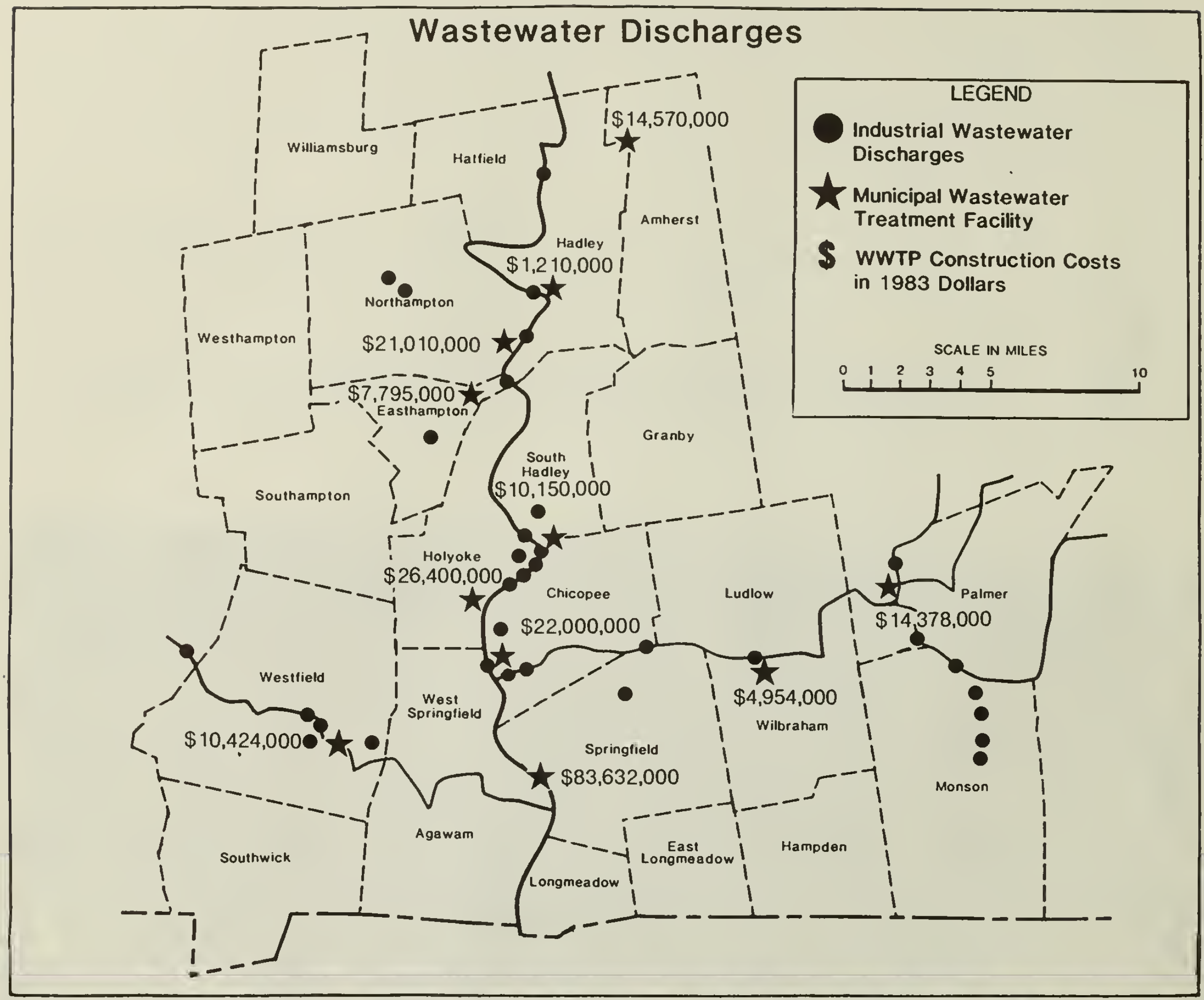
Water Pollution Control Costs

Terry Photo

The significant improvements in Connecticut River water quality over the past decade can be directly attributed to massive public and private expenditures in the form of wastewater treatment facilities and associated wastewater collection systems.

PUBLIC EXPENDITURES FOR MUNICIPAL TREATMENT FACILITIES

The investment in municipal treatment plants along the river has been substantial. Since the construction of the Hadley facility in 1963, more than $150 million has been spent on 10 additional plants in Hampden and Hampshire counties. When expressed as inflated 1983 dollars, the total costs exceed $215 million.



The public investment in clean water also includes operation and maintenance costs, and the cost of wastewater collection systems such as sewers, pump stations, and force mains.

When the costs for these facilities are added to those of the municipal treatment plants, the resulting figures more accurately reflect the total public investment for water pollution control. This total, a staggering $333 million (in 1983 dollars) represents almost $600 for every man, woman, and child in the lower Connecticut River Region.

PRIVATE EXPENDITURES FOR POLLUTION CONTROL FACILITIES

Private industries have also made major expenditures to clean up wastewater discharges. In Hampden and Hampshire Counties, 43 industries discharge wastewater into the Connecticut River or its tributaries. In order to comply with National Pollutant Discharge Elimination System (NPDES) permit requirements, at least 22 industries have constructed their own wastewater treatment facilities at a cost of over $22 million.

Many other industries discharge waste to municipal wastewater treatment plants. These industries must comply with standards for pre-treating waste before it is discharged to a sewer system.

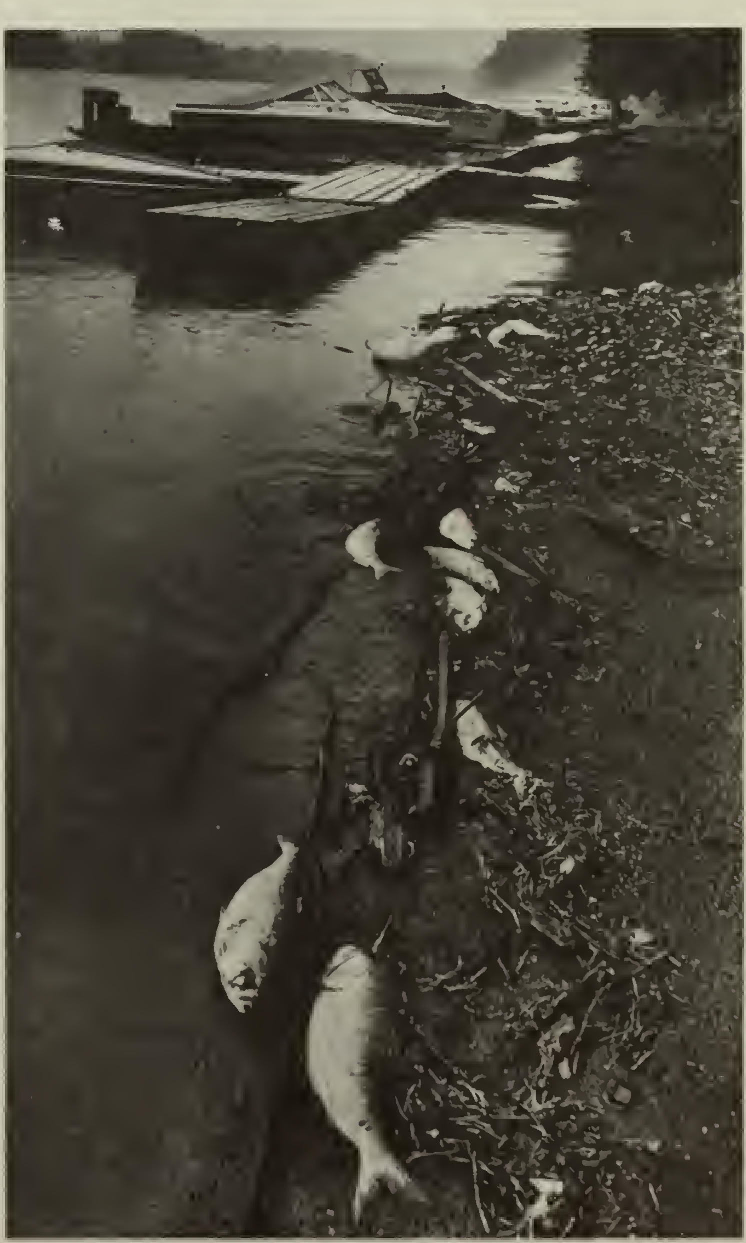
Eliminating Unwanted Pollutants

V

Water Pollution Impacts on Recreation and Fisheries

Combined sewer overflows (CSO) can affect water quality by discharging significant amounts of organic material, nutrients, sediment, microorganisms, oil and grease, metals and other potentially toxic substances into the river without treatment. Overflows generally occur during or after storm events, although in some cases, malfunctioning sewer regulators cause continuous discharges. At the beginning of the storm, the "first flush" of material accumulated in the sewer often contains the highest concentration of pollutants.

CSO discharges can significantly curtail recreational uses of the Connecticut River, particularly contact water sports such as swimming. CSO discharges are of particular concern because they often contain disease-bearing bacteria which make receiving waters unsafe for swimming and contact recreation. These discharges also create objectionable odors, adversely impact fish and wildlife, and generally degrade the aesthetic value of the river and its shoreline. The aesthetics or general



HAMPSHIRE GAZETTE Photo by Gordon Daniels

TABLE 2

Water Quality Problems Associated With Combined Sewer Overflows

Beneficial Water Uses	Type of Impact	Potential Water Quality Problems	Known Connecticut River Problems
Water supply (public, private, agricultural)	Health	Bacteria, Virus Toxics, Metals Total dissolved solids	Bacteria & low level toxics
	Aesthetics	Color, Taste, odor	
Swimming	Health	Bacteria, Virus	Bacteria and occasional floatables
	Aesthetics	Solids and color Floatables Turbidity	
Fishing/Aquatic Habitat	Health	Toxics, Metals Bacteria and Virus	Low level toxics, with acute levels possible
	Survival	Dissolved oxygen Toxics, Metals	
Aesthetic enjoyment/Boating/Water Sports/Riverfront Development	Eutrophication	Nutrients Rooted plants	Occasional floatables and solids
	Aesthetics	Floatables, Solids, Odor and color	

Sources: Driscoll, E. D. and J. L. Mancini, "Assessment of Benefits Resulting from Control of Combined Sewer Overflows", and Metcalf and Eddy, Inc., "Phase I Connecticut River Combined Sewer Overflow Study".

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appearance of the Connecticut River have perhaps the greatest influence on the public's perception of the river. Improvements in river aesthetics would undoubtedly result in greater recreational use of the river and increased investment in riverfront developments.

With improvements in Connecticut River water quality, particularly in terms of dissolved oxygen and temperature, adverse impacts of domestic pollution on fisheries have certainly declined. However, due to the limited availability of data, much remains to be learned about the overall impact of pollutants on Connecticut River fisheries. Concerns remain regarding the impact of combined sewer overflows, heavy metals and pesticides on fisheries.

Imagine: Salmon Fishing And Swimming Beaches

VI

Potential Benefits of Improved Water Quality

A cleaner Connecticut River would provide improved recreational opportunities, such as fishing, swimming and boating. Additional benefits could include improvements in river aesthetics, improved fish habitat and spawning runs, and increased urban riverfront development, tourist attractions and parks. These benefits are enjoyed by all residents of the Pioneer Valley. In turn, they stimulate economic benefits such as tourism expenditures, boat sales and rentals, recreation expenditures, downtown revitalization and increased property values, which improve the property of the region as a whole.

HAMPSHIRE GAZETTE Photo by Richard Carpenter

Current Use

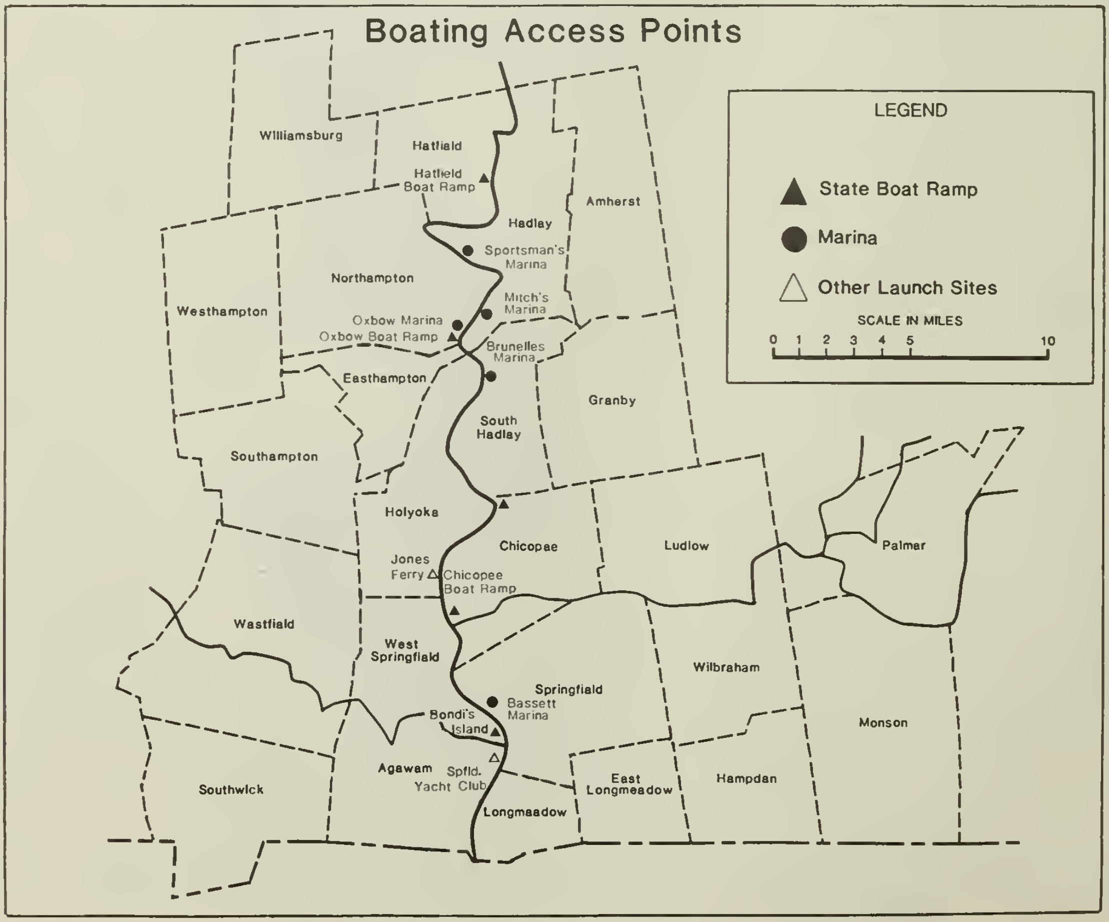
The upper Connecticut River in Massachusetts (Vermont state line to Holyoke Dam) which is already meeting fishable/swimmable water quality standards, has experienced a massive increase in recreational use. On a warm summer's weekend, the upper Connecticut is filled with canoes, motorboaters and waterskiers, while bathers crowd the few sandy beaches and fishermen and hikers peruse the banks. Over 1000 persons use the small section of the upper Connecticut from Northampton to Holyoke on a typical summer weekend day. The lower Connecticut (Holyoke Dam to Connecticut State line), in contrast, is only sparsely used for recreation, with about 10% of the number of users on the upper Connecticut.

The reduced recreational use of the lower Connecticut River is most likely attributable to the public perception of poor water quality, poor access, and the inability to get moorings or gasoline for boats once on the river. On the upper Connecticut River, cleaner water and the availability of gasoline moorings and boat access at numerous marinas and state boat ramps lure boaters to the river.

Recreational Boating

Boating activity on the Connecticut River has at least doubled over the past decade, according to the Massachusetts Division of Marine and Recreational Vehicles. Today, approximately 600 motor boats, 30 sailboats and 40 canoes can be found on the Connecticut River (in Hampden and Hampshire Counties) on a typical weekend day.

There are five commercial marinas located along the Connecticut River in Hampden and Hampshire Counties which have available mooring spaces for 515 boats. In addition, there are four state-maintained public boat ramps and three private boat ramps along this section of the river. Ten



Boating Access Points

boating-oriented organizations (i.e., yacht, waterski, canoe clubs) serve this section of the Connecticut and promote interest in and use of the river through boat trips or events.

Demand for river access by recreational boaters has increased dramatically in the past few years, particularly in the "Holyoke Pool" area above the Holyoke Dam where water quality has improved. In fact, overuse of that area during peak periods has resulted in a less enjoyable and sometimes hazardous experience for boaters. With improved water quality, the lower Connecticut River, below the Holyoke Dam, has tremendous potential for increased boating use. With approximately 7000 registered boats in lower Connecticut River communities, there is a strong demand for recreational boating.

Fishing and Fisheries

Fishing has traditionally been a very popular activity on the Connecticut River. The Connecticut supports the widest array of fish species of any river in New England. Over 63 species have been inventoried, ranging from the anadromous species Atlantic salmon and American shad to the endangered species Shortnose Sturgeon.

Atlantic salmon and American shad are both "anadromous" in that they spawn in freshwater, grow to maturity at sea, then return again to their home rivers to spawn again. In the early 1800's, dam construction and water pollution all but eliminated salmon and greatly reduced shad in the Connecticut River. However, large-scale efforts to restore the fish species were launched in 1965. These efforts have resulted in the expenditure of an estimated $75 million in federal, state and private funds to construct fish passageways over dams, a major fish hatchery and support research and operational programs. Shad restoration has been dramatically successful, with over 480,000 shad passing over the Holyoke Dam fishlift in 1985, one hundred times the number which passed over the dam in 1955. Similar gains have been made in restoring other anadromous species such as blueback herring and sea lamprey. Salmon restoration has been hampered by problems with disease and overfishing in the ocean; however, officials are optimistic that returns will increase over the next few years.

The Shortnose Sturgeon is the only federally designated endangered fish species in New England. The Connecticut River in Massachusetts supports two important populations of sturgeon, including spawning and wintering areas.

Fishing is an increasingly popular sport along the Connecticut, with games species being sought from boats, bridges and along the shoreline. Over 15,000 fishermen from throughout the Northeast are drawn to the Connecticut River Valley for the annual anadromous Shad runs alone. Other than shad, the predominant species caught by fishermen are carp, channel catfish, walleye pike and yello perch. The types of fish caught vary dramatically from northern to southern segments of the river. For example, walleye, bluegill and largemouth bass are caught in large numbers in northern sections of the river, but are not caught at all in the southern section, largely due to water quality problems.

Over 25,000 fishing licenses are sold annually to persons in Springfield, Chicopee, Holyoke, Agawam, West Springfield, South Hadley and Ludlow indicating a strong need for fishing opportunities in this area.

HAMPSHIRE GAZETTE Photo by Richard Carpenter

Swimming/Water Skiing

Swimming, water skiing and other water contact sports now occur almost exclusively north of the Holyoke Dam where these activities have increased significantly in recent years. Due to its reputation for less than perfect water, there is very little swimming in the river south of Holyoke. However, as the Connecticut's water quality and reputation improve, this area will have considerable potential for swimming and water contact recreation.

River Events

Each year, an increasing number of special events and activities are being held on and adjacent to the Connecticut River. These events have included the Regatta at Springfield, the Spirit of Springfield Triathalon, the New England Hydroplane Races in Springfield, the Graham Cracker Classic triathalon in Northampton, crew racing events sponsored by Smith and Mount Holyoke Colleges, sailboat races in Springfield, the Shad Derby in Holyoke, and waterskiing shows at the Oxbow in Northampton.

These events are a direct result of water quality improvements in the river, and have in turn increased public awareness of a cleaner river. In addition to drawing people to the river, these events are pumping increasing amounts of money into local economies.

Tourist Attractions

Many popular museums, historic sites and points of interest attract tourists to the banks of the Connecticut, including the following:

Basketball Hall of Fame, Springfield
Riverfront Park, Springfield
Riverside Amusement Park, Agawam
Holyoke Heritage State Park, canals and historic area, Holyoke
Holyoke Dam and Fish Lift, Holyoke
Arcadia Wildlife Sanctuary, Easthampton
Dinosaur Tracks reservation, Holyoke

Riverfront Parks and Public Lands

The banks of the Connecticut River are rich in natural and cultural history. Many public parks and natural preserves take advantage of the scenic qualities along the river, drawing thousands of visitors each year to share in the wealth of beauty.

The Holyoke Range, which abuts the river, provides a beautiful setting for Mt. Tom State Reservation and Skinner State Park. From the historic Summit house, there are spectacular views of the winding river below.

Springfield's Riverfront Park, developed at a cost of $850,000, has become catalyst in attracting people and attention to the river in Springfield's urban setting. The park includes a playground, picnic grounds and beaches, and features a summer concert series.

In total, there are at least 27 riverfront parks or recreational areas within walking distance of the lower Connecticut River. These public lands provide a critical link to the Connecticut River for thousands of recreational users.

Unique Environmental Areas

There are numerous unique environmental habitats and geologic formations along the Connecticut River. Islands such as Shepards Island and Elwell Island in Northampton offer spectacular river views and recreation opportunities. Interesting remnants of former river channels or "oxbows" including the Northampton Oxbow area, Hatfield Oxbow and Great Pond, and Ned's Ditch in Northampton are filled with wildlife and unique habitats. Evidence of the valley's past and important geologic features can be seen at the Dinasaur Tracks reservation in Holyoke, the Islands area below Holyoke Dam, and Titan's Pier in South Hadley. Other unique environmental areas are the Longmeadow Meadows and the Fort River Mouth in Hadley.

Water Supply/Hydropower

At the present time, the Connecticut River is not used as a direct source of drinking water. However, the Boston Metropolitan Water Resources Authority is currently considering diversion of the Connecticut River for water supply. The diversion is vigorously opposed by Western Massachusetts communities which may also have need to use the Connecticut for drinking water in the future. In fact, communities such as West Springfield and South Hadley are today considering the Connecticut as a possible drinking water source.

The development of hydroelectric power on the Connecticut River was extremely important in the region's early industrialization and urbanization. Connecticut river water is currently used for industrial purposes including process water, cooling water and steam generation. It is estimated that a majority of the Connecticut River water used in the region is consumed by public steam-electric utility plants. There are eleven hydroelectric power facilities operating on the lower Connecticut, all located in the City of Holyoke, operated by utility companies and some industrial firms for in-plant use.

Riverfront Development

The communities along the Connecticut River have become increasingly aware of the potential for using riverfront properties to develop parks, tourist attractions and commercial or residential projects.

The City of Springfield has taken a lead role in the reawakening of the Connecticut riverfront. The City, which has long been separated from the river by the construction of Interstate 91, has re-established its Riverfront Commission to promote wise development of the riverfront. Springfield's new Basketball Hall of Fame, located on the riverfront, has become a major tourist attraction, drawing throngs of fans to see exhibits on basketball's greatest players. The City's Riverfront Park attracts crowds to a summer concert series sponsored by the Mayor's Office of Community Affairs which features a variety of pop and ethnic musical groups. Boating enthusiasts have welcomed the installation of floating docks at Riverfront Park, and have turned out in great numbers for sailboat races, the New England Hydroplane Races and the Springfield Boating Association's regatta. The reawakening of the City's riverfront has prompted several new proposals for its development including: a freshwater aquarium to help stimulate the City's tourism industry; a new boathouse to promote competitive and recreational rowing on the river; and a multi-million dollar waterfront luxury condominium complex. The City also plans to convert a former industrial plant on the riverfront into a tourist information center, a Heritage State Park interpretive center, and a restaurant.

Other Connecticut River communities are also making efforts to improve their riverfronts. Holyoke has developed an attractive Heritage Park with visitor's center adjacent to the canal system. South Hadley has developed Canal Park to commemorate the site of the former South Hadley Canal. Chicopee is considering a recreational or mixed use development at a former power plant site near the Chicopee/Connecticut River confluence.

Aesthetics

The overall attractiveness of the Connecticut River has improved considerably over the past decade due to extensive expenditures to control wastewater discharges. The river seldom suffers from floating solids, scums, discolorations, noxious odors, or other affects of pollution which would reduce its aesthetic appeal. This improved, positive aesthetic appeal has been a major factor in attracting recreationalists back to the river, particularly above the Holyoke Dam. Below the Holyoke Dam, the aesthetic appeal declines somewhat, due to periodic discharges of combined sewer overflows and to unattractive riverbanks near some urban areas which have been strewn with litter, old cars, tires and other trash.

It is likely that further improvements to water quality in the lower Connecticut River would serve as a catalyst to attract many more recreation users to the river and to spur communities to clean up riverbanks and create improved river access areas. In no small measure, the aesthetics of the Connecticut River help to define the "image" of the communities along the river. An improved, attractive, lower Connecticut River could become a focal point for increased community pride and community development.

Strong Support For A Cleaner River

VII Public Attitudes on the Future of the Connecticut River

In making decisions on the future of the Connecticut River, it is crucial to consider public attitudes. Most alternatives for river clean-up will require expenditures of public monies. Therefore, the support of the public, particularly community leaders, is very important. In this study, the Pioneer Valley Planning Commission has surveyed three target groups

- municipal officials
- public agencies and river-oriented organizations
- general public

to assess their attitudes toward the Connecticut River in several specific areas:

- water quality improvements
- current and future recreational use
- support for further clean-up expenditures.

HAMPSHIRE GAZETTE Photo by Richard Carpenter

Analysis of survey results clearly indicates that the Connecticut River is a very important resource for Western Massachusetts residents. The following general conclusions can be drawn from the survey results:

- The achievement of fishable and swimmable water quality standards is a priority for the Connecticut River. All of the river-oriented agencies or organizations and 95% of municipal officials indicated that achieving fishable/swimmable standards was a high or medium priority.

- There is strong support for cost-effective measures to correct combined sewer overflow problems, particularly if federal or state financial assistance is available. All of the general public respondents, 91% of river-oriented agencies or organizations, and 75% of municipal officials indicated strong support for cost-effective correction measures.

- The public will increase recreational use of the lower Connecticut River in Massachusetts if it is cleaned up. A great majority (94%) of public respondents indicated that they would use the Connecticut River more for boating, fishing or swimming if it were cleaned up.

VIII Priority Areas for Water Quality Improvement

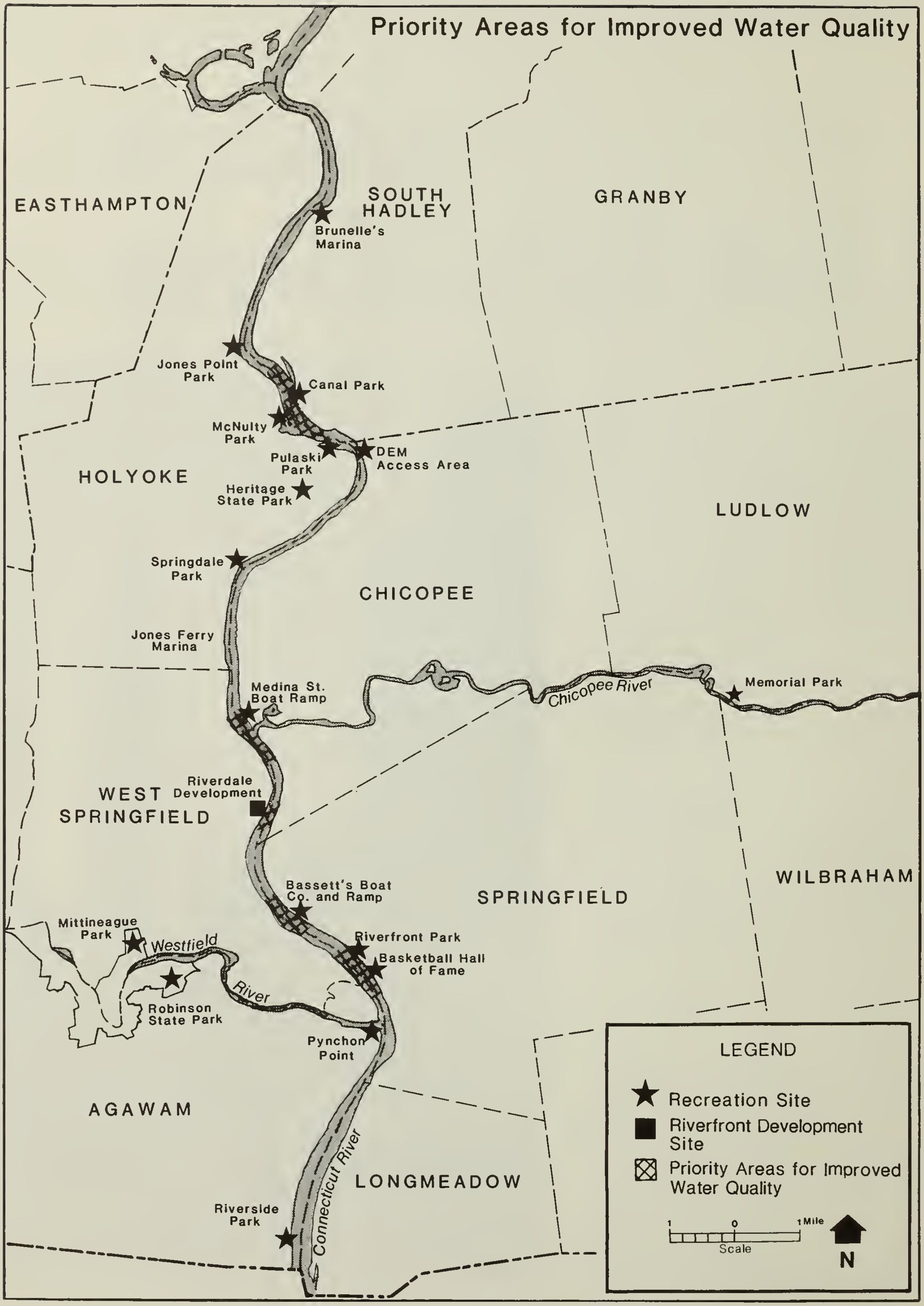
It is anticipated that the costs of separating all of the combined sewer systems on the lower Connecticut River would exceed the financial capability of local, state and federal government to pay. If it is not possible or desirable to separate all combined sewer systems, then attention should be focused on measures to mitigate those overflows having the greatest water quality impact on important recreational, riverfront development on environmental significant areas.

The following town-specific sections and the map, "Priority Areas for Improved Water Quality", identify these important areas, based upon interviews with key municipal officials and development organizations.

Springfield

City priorities for water quality improvement focus on the area around Riverfront Park and city-owned lands near the North End Bridge. However, all of the City's 4.5-mile river frontage is considered important due to the potential development of a scenic riverway.

SPRINGFIELD NEWSPAPER Photo by Dave Roback



Priority Areas for Improved Water Quality

Chicopee

The top priority area for improved water quality in Chicopee is the confluence of the Chicopee and Connecticut Rivers. This area contains large tracts of publicly-owned lands and important natural and wildlife habitat areas which are particularly significant given its close proximity to downtown Chicopee. There are also sandy beach areas on the Connecticut River above and below the confluence which could provide public swimming opportunities with improved water quality.

Agawam

Agawam's priority areas for water quality improvement focus largely on the Westfield River, particularly in the Robinson State Park area, where fishing and eventually, swimming could be expected to increase with cleaner water. Agawam's Connecticut River area is a lower priority for contact water recreation due to its location immediately downstream from Bondi's Island Treatment Plant, a major regional wastewater treatment plant.

Ludlow

The Red Bridge Dam is the only site in Ludlow that affords recreators an interactive experience with the Chicopee River, and this is located upstream of all CSO outfalls. Therefore, the Town's priority areas for water quality improvement should not be designated on the basis of shoreline use, but rather, where water quality problems are most severe.

Holyoke

Due to the concentration of activity in the northern downtown area, Holyoke's clean water priority area spans from the Route 116 bridge north to Jones Park. This stretch encompasses Highlands neighborhood natural areas complex, the most heavily fished section of the river, and Pulaski and Jones Park.

West Springfield

Although West Springfield currently boasts very little in the way of riverfront recreation or development, this situation will soon change as a major project slated for the area just south of the Interstate 91 interchange will bring some of each to the Town. The "Riverdale" project involves the construction of a large, commercial retail complex and a travel center near the banks of the Connecticut. The developer has agreed to dedicate some riverfront land to open space and provide for public access to the area. When realized, this site will constitute the only formal public access point to the river in West Springfield. For this reason, the section of river flowing past the Riverdale site has been given top priority for clean water.

South Hadley

The stretch of river between the Route 202 bridge and the Town's southern border is the Town's priority area for water quality improvements. This area includes the islands and shoreline below the Holyoke Power Company's dam which are heavily used for fishing and recreation.

Conclusions: Making the Goal a Reality

Improved water quality will bring about great opportunities for increased use of the Connecticut River. A cleaner river could be a catalyst to spur downtown revitalization efforts in our cities, and could allow the Connecticut to reach its full potential as an exceptional recreational resource for the region. Already, the vision of a cleaner river has generated numerous ideas and proposals for swimming beaches, boathouses and marinas, downtown riverfront development and parks, tourist attractions, and fishing piers. Some of these ideas are, even now, moving toward fruition.

Achieving the fishable/swimmable goal for the Connecticut River will not be an easy or inexpensive task. There are many hurdles which must be overcome to take this last step toward clean water. First, a cost-effective solution to the combined sewer overflow problem must be found and engineered. Second, the seven communities along the river with CSO discharges must agree to cooperate to bring about a regional solution which is both effective and equitable. Finally and most importantly, the communities and the state and federal governments must put together a package of financial resources to pay the high price of clean water. Each citizen in Springfield, Chicopee, Holyoke, West Springfield, Agawam, South Hadley and Ludlow will be asked to pay his or her share of the cost. Similarly, each citizen will share in the benefits: the opportunity to fish, swim, boat or hike along a cleaner Connecticut River.

Strong and continued public support is the essential element to ensure that our legislators and our community officials continue to hear the message that a cleaner Connecticut River is a key to our quality of life in the Connecticut Valley. Springfield's Mayor Richard Neal recently stated that ". . .Springfield's past has been intimately tied with the river... I think you could make the argument that its future is intimately tied to the river." This renewed vision for the Connecticut River, shared by many in riverfront communities, inextricably links the health of the river to the social and economic well-being of citizens living along it.

Imagine, taking a cool dip in the clean Connecticut River on a sunny, summer afternoon, or landing a magnificent Atlantic salmon during the Spring spawning run off a downtown pier. Imagine.